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Net Profit: Food for His Family—From slippery platforms at Celilo Falls, Indians take fat salmon out of the foaming Columbia River. The Celilo tribe, by treaty with the United States, owns sole fishing rights here, but a dam being built at The Dalles, Oregon, will soon cover the spot with slack water.

(SEE BULLETIN NO. 4)

RAY ATKESON

UMI

After World War I Turkey was reduced to a small area on each side of the straits. Turks then disliked their very name because it meant "rustic." In 1919 Kemal began 19 years of leadership that recovered Turkey's occupied land and made Turk a name honored throughout the country.

Women Emancipated—As first President of the Republic (1923-38), Kemal ruled with a benevolent iron hand, making sweeping reforms. Church was separated from State. Polygamy was abolished; women were given social equality with men. A Latinized alphabet replaced Arabic script. New schools, for adults as well as for children, were established. In 1935 titles were abolished and surnames adopted. The Republic's George Washington took the surname Ataturk, meaning "Father of the Turks."

After Ataturk's death, his policies were continued by Ismet Inonu, his successor. Turkey declared war on the Axis in 1945. In 1946 it was one of the first nations to repay World War II lend-lease debts to the United States in full.

Following the war, political and civil liberties were increased. New political parties competed with that founded by Ataturk. One of these swept to victory in the Republic's first free election in May, 1950. The new National Council chose Celal Bayar, Prime Minister under both Ataturk and Inonu, as Turkey's third President. Turkish democracy had proved itself.

Tractors Bring Boom—By the 1950 election the Republic was well launched on an agricultural boom paced by American-made tractors. Some 36,000 are now in use and account for greatly increased production of wheat, cotton, tobacco, and oilseeds. The boom has spread to industry and to development of coal, iron, copper, chrome, manganese, and oil.

A little more than one fourth of Turkish land is under cultivation. Nearly one half is pasture for sheep, cattle, and angora goats.

With all its 40,000 villages, Turkey has only twelve cities of more than 50,000 people. Istanbul on the Bosporus, metropolis of a million souls, was Constantinople for fifteen centuries until 1930, and Byzantium for twenty centuries before that. The current jukebox favorite truthfully proclaims: "Why did Constantinople get the works? That's nobody's business but the Turks'." Robert College at Istanbul, founded by Americans, has trained Near East leaders for ninety years.

Ankara, the capital (illustration, back cover), though an ancient city, symbolizes the new Turkey because it has grown nearly tenfold under the Republic. Its 300,000 almost match the population of Izmir (Smyrna), port on the Aegean, where an annual trade fair is held in September.

References—Turkey is shown on the National Geographic Society's maps of Europe and the Near East, and Southwest Asia. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also, "Where Turk and Russian Meet," in *The National Geographic Magazine*, June, 1952; "Turkey Paves the Path of Progress," August, 1951; "Peasants of Anatolia," July, 1948; "The Turkish Republic Comes of Age," May, 1945; "Alert Anatolia," April, 1944; and in the GEOGRAPHIC SCHOOL BULLETINS, May 4, 1953, "Istanbul Celebrates 500th Turkish Birthday"; and "Turkey Works to Solve Its Traffic Problems," November 24, 1952. *(Issues of The Magazine not more than 12 months old are available to schools and libraries at a specially discounted price of 50¢ a copy. Earlier issues sell for 65¢ a copy through 1946; $1.00, 1930-1945; $2.00, 1912-1929. Write for prices of issues prior to 1912).*

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UMI

MAYNARD OWEN WILLIAMS

Turkey Takes to Tractors—With Sonny's assistance, a Turkish farmer shows off to interested neighbors his new tractor, bought with Marshall Plan help.

Bulletin No. 1, January 25, 1954

President of Turkey, Tough U. S. Ally, Arrives

America may appreciate tender turkey on its Thanksgiving and Christmas dinner tables, but it is also fond of the tough Turkey with which it is allied in the cold war.

When President Celal Bayar of the Republic of Turkey reaches Washington this week for a tour of the United States, Americans will have an opportunity to show their high regard for the determined, vigorous nation that stands as the easternmost bulwark of the fourteen-nation North Atlantic Treaty Organization (NATO).

East Is West—Slightly larger than Texas, Turkey bridges Europe and Asia at the Bosporus and Dardanelles. Last October 29 it celebrated its thirtieth birthday as a republic and modern nation. Its 21,000,000 citizens—17,000,000 of them farmers—back their elected leaders in support of Western democracy, culture, and civilization.

Only by being militarily tough and united against communism could Turkey take such a stand. At opposite ends of its 900-mile east-west spread across mountainous Asia Minor and into Europe, Turkey borders Bulgaria for 124 miles and shares a 367-mile frontier with Soviet Russia.

Although 5,000 miles apart, Turkey and the United States hold the same ideals. Since 1947 nearly $1,000,000,000 in American aid has helped Turkey to grow strong. Volunteers from its army of more than 350,000 served the United Nations cause in Korea with distinction.

Recent tests revealed that the ground beneath these settlements contains more than fifty per cent water in the form of ice crystals. When building heat melts this ice it reduces the building's foundations to mud. The unstable earth prevents installation of adequate underground water and sewage systems. Residents fear epidemics might result from unsanitary conditions.

Aklavik is the center for fur trading, administration, and missionary activities in a 50,000-square-mile area of the lower Mackenzie region. It has 400 permanent residents and twice that many in July and August. Coppermine has some 200 inhabitants.

House-moving Cats—About two-thirds of Aklavik's 150 buildings will be hauled by "cat," or caterpillar tractor, along the frozen Mackenzie River to the new, as yet undetermined, site. A small hotel, post office, radio and meteorological station, two missions, community hall, and several trading posts are the village's main structures. The actual transfer may not begin until the winter of 1955-56. Building of roads and installation of water and sewage lines will precede the move.

New Aklavik will have a much-needed airfield. The community is now virtually cut off from the outside world in winter. In the summer Diesel tugs make two round trips between Aklavik and Fort Smith, capital of the Northwest Territories. From there, other river boats connect with railhead at Waterways, Alberta. Wood-fueled paddle boats once served the scattered outposts along the 1,620-mile watercourse.

Aklavik and Coppermine are in the Mackenzie District of the Northwest Territories, which embrace nearly one third of Canada. The Territories are administered by the Canadian Federal Government. Population in 1951 was 16,004, including 6,857 Eskimos and 3,803 Indians.

July, August, and Winter—Although it is often pictured as a region of deep snows, the Mackenzie District has only about half the snowfall of the Canadian Great Lakes area and northern New England. Winter temperatures average fifteen to twenty-three degrees below zero—considerably higher than those of the eastern Arctic of North America.

Residents of the Mackenzie Valley say they have three seasons—July, August, and winter. Summers are mild. Days are warm and bright, and light summer clothing is customary. A *School Bulletins* writer last summer found residents of Yellowknife, "metropolis" of the Northwest Territories, sweltering in unaccustomed ninety-five degree heat. He became acquainted with the problems of melting permafrost in Hay River, Northwest Territories, where the hotel had slipped into the ground at such an angle that his children rolled out of their slanting bed during the night.

References—Aklavik and Coppermine may be located on the Society's map of Canada, Alaska & Greenland.

For additional information, see "Canada Counts Its Caribou," in *The National Geographic Magazine*, August, 1952; "Milestones in My Arctic Journeys" and "Nomads of the Far North," October, 1949; "Canada's Caribou Eskimos," January, 1947; and numerous other articles listed under "Canada" in the *Cumulative Index to the National Geographic Magazine.*

See also, in the GEOGRAPHIC SCHOOL BULLETINS, October 26, 1953, "Gold Rush Memories Keep Yukon Trail Alive"; "Alaska Highway Traffic Tops Its Own Record," November 10, 1952; and "Dawson Out, Whitehorse In as Yukon Capital," April 30, 1951.

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Arctic Bush, Muskeg, and River Isolate Aklavik—In summer an occasional supply boat reaches this settlement in the flat delta of the Mackenzie River, and a small plane lands once a week. Thawing permafrost and crumbling banks have prevented the establishment of water-supply and sewage systems. Now the Government plans to move the growing town to a more healthful and stable location near by. The surrounding spruce forests are among the continent's most northerly. Ponds and treeless muskeg patches in the distance look like cleared fields.

Bulletin No. 2, January 25, 1954

Arctic Villages Sink in Melting Permafrost

Under some conditions permafrost is not as permanent as it sounds. The dictionary defines the term as "permanently frozen subsoil in arctic and subarctic regions." But if a home is erected improperly on it, the heat of the structure gradually melts the area underneath, leaving the house "floating on mud."

Partly for this reason, two Canadian towns which are sinking into the Arctic muck are planning to move—lock, stock, and barrel—to new locations. They are Aklavik, largest Canadian settlement north of the Arctic Circle, and Coppermine, 500 miles east on the Arctic shore.

Buildings Topsy-Turvy—Aklavik lies about seventy water miles inland from the Beaufort Sea in the delta of the Mackenzie River, the "Mississippi of the north." River erosion teams with melting permafrost in making the community's location untenable. Already many of its buildings have assumed topsy-turvy angles as they sink unevenly into the ground. Others have crumbled before the waters of the Mackenzie, the river mistakenly followed by Alexander Mackenzie when the Scottish fur trader tried to reach the Pacific in 1789.

Coppermine, at the mouth of the Coppermine River, has suffered similar damage. It, too, ranks high in Arctic exploration, for Samuel Hearne, on his amazing journey of 1770-72, traced the river to its mouth.

atomic weapons, and as a field laboratory for guided missiles and nuclear and supersonic devices.

It boasts an added advantage. Its testing range, some 3,000 miles long, matches the coast-to-coast distance in the United States. Any new weapon launched would streak over a wind-swept emptiness of red desert mud, dried salt lakes, and into a lonely stretch of the Indian Ocean with scant chance that any spying eyes might detect it. Only an occasional kangaroo, an ostrichlike emu, or a dingo—the wolfish wild dog—prowls the range path to the continent's northwest coast.

Wryly Named—Woomera is a sardonically apt name for the site. In the language of the aborigines, it is the word for the notched throwing stick used by warriors and hunters to propel their spears with more deadly accuracy and force, and for much greater distances, than can the unaided arm.

The contrast between such primitive weapons and those now being tested is no less startling than the difference between the modern town of science that has grown up to guide the work and its wild, prehistoric setting, 300 miles northwest of Adelaide, one of the country's major seaports.

Officially named the Long Range Weapons Establishment, Woomera is a joint British-Australian project which might be called the proving laboratory for nuclear and supersonic inventions being perfected in the interests of the Empire and its Commonwealth family of nations.

Here Britain's second and third atomic explosions were detonated last October. A few months earlier London hailed the "prodigious performance" of guided rockets hurtling along at more than 2,000 miles an hour. United States military scientists observed some of 1954's experiments there. Such visits may become frequent if plans are worked out to share more atomic know-how with Britain.

Never-Never Land—Australians call the region west of Woomera the "Never-Never." Mercury soars to 120 by day, diving to subfreezing at night. Not even atomic blasts add to the desolation. Here and there rise gray-green patches of such hardy plants as salt bush and blue bush, gnarled and stunted mulga trees, and "dead-finish" acacia.

Woomera is a man-made oasis at the edge of this bleakness. Built to house scientific, technical, and other personnel, it has several thousand inhabitants, including hundreds of children. Gardens, a school, church, shops, and a cricket field make for near-normal community life.

People work in laboratories and technical offices, at launching sites and airfields. They use complicated machines and instruments that control and analyze the performance of futuristic weapons.

Water for the town must be piped 250 miles from the Murray River. Food and other supplies come by plane and truck, or over the new rail spur specially built from Australia's east-west transcontinental line.

References—Woomera may be located on the Society's map of Australia.

For additional information, see "From Spear to Hoe on Groote Eylandt," in *The National Geographic Magazine*, January, 1953; "Beyond Australia's Cities," December, 1936; and "Capital Cities of Australia," December, 1935.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, April 20, 1953, "Uranium Brings Boom to Northern Australia"; "Australia's Sapphire Supply Rivals Ceylon's," March 2, 1953; and "Australia Plans Study of Great Barrier Reef," October 1, 1951.

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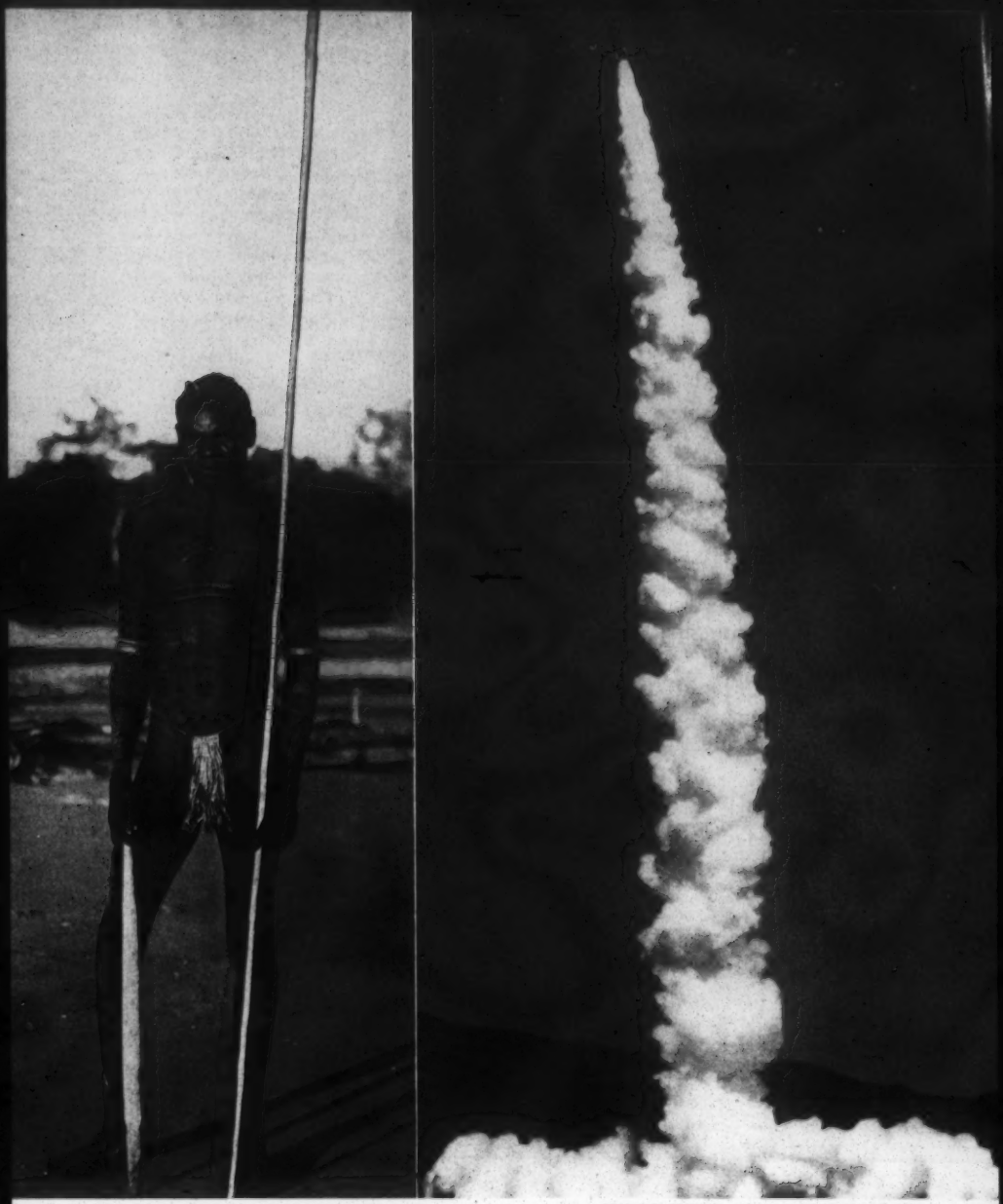

DONALD F. THOMSON, AND U. S. AIR FORCE, OFFICIAL

Woomera Spans the Centuries in Propelled Weapons—While such rocket-powered missiles scream skyward from Australia's atomic testing ground, near-by aborigines still cast stubby spears with Stone Age throwing sticks.

Bulletin No. 3, January 25, 1954

Add Woomera, Australia, to Atom Gazetteer

Woomera, in the arid "dead heart" of Australia, now ranks with the desert wastes of New Mexico and Nevada as a major testing ground for

and the Marine Laboratory of the University of Miami, at Coral Gables, Florida. The researchers hope to discover the spawning grounds of certain fishes valuable as food, and to trace their migration paths.

Commercial fishermen achieved spectacular success some years ago when they put rosefish on the United States market. Until 1934, this small, big-eyed Atlantic fish was regarded by deep-sea trawlers as marine trash, to be thrown away.

The swordfish was almost unknown outside of New England until after World War I. Fishermen detested it because it tore their nets and destroyed marketable varieties of fish. Florida and the West Indies once easily supplied the American's demand for the clawless rock lobster. Now, so popular has the spiny creature become that it is also shipped in from South Africa, Australia, and New Zealand.

Kipper Is a Process, Not a Fish—Since 1948 east Africans have been "kippering" a strange fish with an elephantine snout found in deeper parts of Lake Victoria. Numerous fish, including the salmon (illustration, cover), are kippered. This process involves splitting the fish and then salting and smoking it.

Since World War II the British have consumed a lot of steak cut from the whale. As it is the world's largest animal, this seagoing mammal can provide steaks for a multitude of people. Another fish that has won a place on postwar menus is the snoek, an inhabitant of South African waters which resembles the ferocious—and edible—barracuda.

The unattractive appearance of some sea creatures hinders their sale as food. People who will happily eat crabs and oysters balk at eels, which are definitely fish—not snakes—and highly nourishing. Diamondback terrapin is popular with some people who scorn its cousin, the "snapping turtle."

There's More in a Name than Meets the Eye—Commercial tricks of labeling sometimes make these prejudices look foolish. In many parts of the world people eat "Cuban cod," "fish and chips," or "dry-salt fish," little dreaming it is shark. A man may enjoy a plate of "scallops" just as much when it is chunks cut from the fins of a ray or skate as when it is really a scallop—the tasty mollusk whose fanlike shell is found in all the oceans.

The barracuda, a salt-water fish, sometimes masquerades as "deep-sea trout." The trout, related to the salmon, is most often found in northern lakes and rivers, although it sometimes goes to sea.

In the absence of prejudice, most water creatures are delicious. A Maryland Eastern Shoreman considers tiny oyster crabs, eaten alive, rare tidbits, but the same Marylander turns up his nose at steamed soft clams which delight the New Englander.

References—See also, "Marineland, Florida's Giant Fish Bowl," in *The National Geographic Magazine*, November, 1952: "Fish Men Explore a New World Undersea," October, 1952; "Down East Cruise," September, 1952; "Man-of-War Fleet Attacks Bimini," February, 1952; "Lake Sunapee's Golden Trout," October, 1950; "Menhaden—Uncle Sam's Top Commercial Fish," June, 1949; "Fishing in the Lofotens" and "Shad in the Shadow of Skyscrapers," March, 1947; and other articles listed under "Fishes and Fisheries" in the *Cumulative Index to the National Geographic Magazine*; and in the GEOGRAPHIC SCHOOL BULLETINS, April 27, 1953, "Tuna Fishing Leaps from Sport to Industry"; "Herring Makes History and Teaches Geography," January 19, 1953; and "Menhaden Leads U. S. Commercial Fish Catch," February 18, 1952.

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ALAN VILLIERS

A Portuguese Doryman Surveys His Gleaming Catch—While waiting for fish to bite at the hundreds of hooks of his sunken long-line, the doryman catches single fish with jiggers—pieces of lead cast to look like herring. Although Portuguese fishing fleets are now equipped with electric lights, heat, refrigeration, and Diesel engines for emergencies, they still use sail as they did four and a half centuries ago when they first crossed the ocean to the Grand Banks.

Bulletin No. 4, January 25, 1954

Science Searches for New Fishing Grounds

With the rapid increase of the world's population, seafood is acquiring added importance. The quick-freezing process brings fresh ocean fish to prairie dwellers who once tasted it only from cans. With the widened market, the business of discovering and developing new fishing grounds has become almost a major industry.

Fish are among the most nourishing of foods, being high in proteins and vitamins. Although fishing is an ancient industry, the sea's food resources have been only partially explored. Such famous fishing grounds as the Grand Banks off Newfoundland, the Dogger Bank in the North Sea between Denmark and England, Norway's Lofoten Islands, and Alaska's rivers, have long supplied food. Now science and industry are joining in an intensive study of the possibilities of obtaining greater quantities from the seas that cover three quarters of the globe.

Scientists Study Fish Habits—One such project is a study of pelagic (ocean-going) fishes being conducted by the National Geographic Society

From Santa Cruz, it is planned to extend the railroad westward, joining lines which are now operating across the Chilean border to the Pacific port of Arica. Thus, eventually, there will be a transoceanic line linking this Pacific port through Bolivia to Santos, Brazil, on the Atlantic. Such a line will be important to all three countries, but especially to Bolivia which has no seaports of its own.

Bolivia spreads over 424,165 square miles, but its 3,500,000 people are concentrated mostly in the 12,000-foot *altiplano*, the high valleylands of the Andes Mountains. There the tin mines—primary economic hope and despair of the country—are located.

Enter Argentina—Another railroad project, when completed, will connect Santa Cruz with Yacuiba, 300 miles south on the Argentine border. Thus eastern Bolivia will be joined to the vast Argentine rail network that fans out from Buenos Aires. Both countries are cooperating in building this new line.

Bolivia has still other plans for improving and extending its railroad system, but many of them face challenging engineering difficulties which will have to be solved. South America as a whole does not have the complete rail network so familiar to North Americans.

Of the world's total of 783,679 miles of railroad track, the United States leads with 223,300, having grown from a thirteen-mile line operating in 1830. Argentina is the leader among Latin American countries with 26,710 miles, closely followed by Brazil with 21,251 miles. Bolivia's railroad history started in 1889, some thirty-eight years later than Brazil's. The country now has 1,608 miles of track, with long-range plans for increase.

First Class Worth Paying for—Perhaps one of the things new construction and development will eliminate will be the old custom that existed in many places where wood-burning locomotives were used. Third-class passengers, who paid the lowest fare, were expected to chop wood to satisfy the appetite of the locomotive. Second-class passengers might be called on to throw the wood into the tender, or to haul water from a near-by stream. First-class passengers kept their hands clean and just enjoyed the ride.

Railroads, vital to any modern country, have almost always met opposition at first. Indians feared them. Farmers were afraid they would run over their livestock, or that sparks from the locomotives would set fire to their fields. Stagecoach operators and canalboat interests resented them for taking business away. Many individuals feared that "their tremendous speeds" (about fifteen miles an hour) would be injurious to health.

References—Areas where new rail lines are being built in the Andean countries may be located on the Society's map of South America.

See also, "Sky-High Bolivia," in *The National Geographic Magazine*, October, 1950; "Capital and Chief Seaport of Chile," October, 1944; "Bolivia—Tin Roof of the Andes," March, 1943; "Buenos Aires: Queen of the River of Silver," November, 1939; "Trains of Today—and Tomorrow," November, 1936; and, in the GEOGRAPHIC SCHOOL BULLETINS, October 26, 1953, "Bolivia Upset by Drop in Tin Price"; "Road-Builders Link Chile's Varied Regions," May 11, 1953; and "Varied Geographic Regions Make up Argentina," January 14, 1952.

UMI

FEDERICO KOHLMANN

Transcontinental Trains Traverse Tough Terrain—This one heads south through Argentina's Humahuaca Ravine toward Jujuy—about 120 miles, as the condor flies, from the Bolivian border. Its destination is Buenos Aires, on the Atlantic. Returning, it will pass this point and go on to La Paz, one of Bolivia's two capitals. There it connects with a line to Arica, Chile's northernmost Pacific port.

Bulletin No. 5, January 25, 1954

Bolivian Indians Still Fight Iron Horse

Redskins of the early West fought the smoke-belching, noisy iron horse because they knew that where it went the white man had come to stay. Today, brown-skinned Indians of Bolivia's "wild east"—its remote Santa Cruz Province—shoot showers of arrows at trains going by for much the same reason. For the first time, the railroad is invading their hunting grounds.

Train crews have been issued firearms for the run through the low, hot, fertile lands on the newly opened link of the line from Corumba, Brazil, to Santa Cruz, Bolivia. On the border, out of range of the excited archers, Presidents of both countries will formally open the line within a month.

Oil Lures Brazil—Rich oil deposits have been reported in the southeastern part of Bolivia. Brazil is lacking in oil. This partially explains the fact that the railroad, though in Bolivia, is being constructed largely at Brazilian expense. Also, the coastal country stands to prosper in the role of middleman as other resources of the region are developed.

Heretofore, there has been no easy outlet for the Santa Cruz area. The railroad is hoped to stimulate settlement and greatly increase crop production. The soil and climate are suitable for growing oranges, grapes, bananas, pineapples, and dates. Oil wells can be drilled. Cattle raising and tapping of jungle rubber are other possibilities.

(SEE BULLETIN NO. 1)

GEORGE PICKOW, THREE LIONS

New Construction Makes Ankara One of the World's Most Modern Capitals: A Bank and Department Store Rise in the Background